

WHAT IS CLAIMED IS:

1. A fluid vaporizing device, comprising:
- a fluid source;
- a fluid passage through which fluid from the fluid source is vaporized; and
- 5 a tubular heater comprising a thin electrically resistive film lining the interior surface of all or part of the length of the fluid passage.
2. The fluid vaporizing device of Claim 1, wherein the heater comprises one or more of platinum, gold, nickel, silver, or tin in the form of a pure metal, alloy, mixture, or plural layers and/or the fluid passage is of capillary size.
- 10 3. The fluid vaporizing device of Claim 1, wherein the fluid passage is located in a monolithic or multilayer body of an electrically insulating material and/or the fluid passage has a uniform cross section along the length thereof, and a maximum width of the fluid passage is 0.01 to 10 mm.
4. The fluid vaporizing device of Claim 1, wherein the heater comprises
- 15 a deposited layer of platinum.

5. The fluid vaporizing device of Claim 1, wherein the heater is a bio-compatible material, and the heater is arranged to be in direct contact with fluid in the passage.

6. The fluid vaporizing device of Claim 1, wherein the fluid passage is at least partially defined by first and second layers of material enclosing a channel therebetween, or wherein the fluid passage is defined by a stack of first, second and third layers of material with the third layer comprising a void enclosed between the first and second layers; and, wherein the layers are assembled to form the fluid passage prior to the formation of the heater.

7. The fluid vaporizing device of Claim 1, wherein the thin electrically resistive film is deposited by a process selected from the group consisting of thermally decomposing a metal salt deposited in the passage in solution, heating a metal powder deposited in the passage in suspension or emulsion in a carrier, reducing a metal oxide deposited within the passage in a suspension or emulsion in a carrier, coating the passage with resistive ink, electroless deposition of one or more layers of metal, and vapor deposition of a metal by electrically heating a wire threaded through the passage.

8. The fluid vaporizing device of Claim 1, wherein the thin electrically resistive film heater has been formed within the fluid passage by steps of coating the interior of the passage with a metal powder, metal oxide powder, or metal salt in solution, suspension, or dispersion, and heating the passage to a temperature  
5 sufficient to reduce the deposited material to a thin metal film.

9. The fluid vaporizing device of Claim 1, wherein the thin electrically resistive film heater has been formed within the fluid passage by steps of:

(a) coating the interior of the passage with a metal salt solution; and,

(b) heating the passage to a temperature sufficient to reduce the  
10 deposited material to a thin metal film.

10. The fluid vaporizing device of Claim 1, wherein the fluid passage is located in an aerosol generator of an inhaler having a mouthpiece, the outlet of the passage directing volatilized fluid into the mouthpiece of the inhaler wherein an aerosol can be formed in the mouthpiece.

15 11. The fluid vaporizing device of Claim 1, further comprising a power supply arranged to supply electrical current to the heater sufficient to resistively heat the heater and volatilize the fluid in the passage.

12. The fluid vaporizing device of Claim 3, further comprising at least two vias filled with an electrically conductive material connecting electrical contacts on an exterior surface of the body to the heater within the interior of the fluid passage or to conductive elements in communication with the heater within the interior of the fluid passage.

13. The fluid vaporizing device of Claim 1, wherein the heater is arranged to directly contact the fluid in the fluid passage or wherein the heater is coated with a material comprising glass, polymer, and/or resin.

14. The fluid vaporizing device of Claim 11, further comprising a controller operably connected to the power source to allow intermittent activation of the heater.

15. A method for generating a vaporized fluid, comprising the steps of:  
(a) supplying fluid to a fluid passage, wherein a heater is arranged to volatilize the fluid in the fluid passage such that the volatilized fluid is directed to an outlet from which the volatilized fluid is ejected out of the fluid passage;  
(b) heating the heater so as to volatilize the fluid in the fluid passage; and

(c) directing the volatilized fluid out of the fluid passage via the outlet;  
wherein the heater comprises a tubular thin resistive film lining the fluid  
passage.

16. The method of Claim 15, wherein the fluid passage comprises a  
5 passage in a body of an inhaler and the volatilized fluid is ejected through an  
opening in a surface of the body so as to form an aerosol to be inhaled.

17. The method of Claim 15, wherein the fluid passage has a maximum  
cross sectional dimension of 0.01 to 10 mm and the fluid comprises a solution  
containing a medicated fluid.

10 18. A method of manufacturing a fluid vaporizing device comprising the  
steps of:

(a) providing a fluid passage in a body, the fluid passage having an inlet  
opening and an outlet opening; and,

(b) forming a tubular heater by depositing a thin resistive film inside said  
15 fluid passage such that the film lines all or part of the length of the passage;  
the heater being operable to volatilize fluid in the passage by passing an  
electrical current through the film.

19. The method of Claim 18, wherein the depositing step comprises introducing a metal in solution, suspension, or dispersion in the flow passage and depositing metal on the interior of the passage.

20. The method of Claim 18, wherein the depositing step comprises  
5 introducing a solution containing a platinum salt into the fluid passage, depositing platinum and heating the deposited platinum.

21. The method of Claim 18, further comprising the step of forming  
conductive contacts electrically connecting the exterior of the body to the interior of  
the passage; the contacts being operable to supply an electrical current to the heater  
10 and wherein the contacts may be formed before, after, or concurrently with the  
formation of the heater.

22 The method of Claim 18, wherein the depositing step comprises a process chosen from the group consisting of:

thermally decomposing a metal salt, deposited in the passage in solution, to a thin resistive metal film;

5 heating a metal powder deposited in the passage in suspension or emulsion; reduction of a metal oxide deposited within the passage in a suspension or emulsion,

coating the passage with resistive ink;

electrolessly depositing of one or more layers of metal; and,

10 vapor depositing a metal by electrically heating a wire threaded through the passage.

23. The method of Claim 18, wherein the depositing step comprises:

(a) coating the interior of the passage with a layer of metal powder, salt, or oxide in solution, suspension, or dispersion; and,

15 (b) heating the layer to a temperature sufficient to convert the layer to a thin metal film.

24. The method of Claim 18, wherein the depositing step comprises:
- (a) coating the interior of the passage with a metal salt solution; and,
  - (b) heating the passage to a temperature sufficient to reduce the

deposited material to a thin metal film.

- 5           25. A fluid vaporizing device made by the method of Claim 18.